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Proposed Re-evaluation Decision PRVD2011-13

Poly[oxyethylene (dimethyliminio)ethylene (dimethyliminio)ethylene dichloride] (POD)

(publié aussi en français)

06 October 2011

This document is published by the Health Canada Pest Management Regulatory Agency. For further information, please contact:

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Canada

ISSN: 1925-0959 (print)
1925-0967 (online)

Catalogue number: H113-27/2011-13E (print)
H113-27/2011-13E-PDF (PDF version)

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Overview

What Is the Proposed Re-evaluation Decision?

After a re-evaluation of the antimicrobial active ingredient poly[oxyethylene(dimethyliminio) ethylene(dimethyliminio)ethylene dichloride], hereafter referred to as POD, Health Canada's Pest Management Regulatory Agency (PMRA), under the authority of the *Pest Control Products Act* and Regulations, is proposing continued registration for the sale and use of products containing POD in Canada.

An evaluation of available scientific information found that products containing POD do not present unacceptable risks to human health or the environment when used according to label directions. As a condition of the continued registration of POD uses, new risk-reduction measures must be included on the labels of all products. Additional data are being requested as a result of this re-evaluation.

It should be noted that for end-use products containing more than one active ingredient under re-evaluation, registration status might change as a result of the re-evaluation of the remaining affected active ingredients.

This proposal affects all end-use products containing POD registered in Canada. Once the final re-evaluation decision is made, the registrants will be instructed on how to address any new requirements.

This Proposed Re-evaluation Decision is a consultation document[1] that summarizes the science evaluation for POD and presents the reasons for the proposed re-evaluation decision. It also proposes additional risk-reduction measures to further protect human health and the environment.

The information is presented in two parts. The Overview describes the regulatory process and key points of the evaluation, while the Science Evaluation provides detailed technical information on the assessment of POD.

The PMRA will accept written comments on this proposal up to 45 days from the date of publication of this document. Please forward all comments to Publications (please see contact information indicated on the cover page of this document).

[1] "Consultation statement" as required by subsection 28(2) of the *Pest Control Products Act*.

What Does Health Canada Consider When Making a Re-evaluation Decision?

The PMRA's pesticide re-evaluation program considers potential risks, as well as value, of pesticide products to ensure they meet modern standards established to protect human health and the environment. Regulatory Directive DIR2001-03, *Pest Management Regulatory Agency Re-evaluation Program*, presents the details of the re-evaluation activities and program structure.

POD has been re-evaluated under Re-evaluation Program 1. This program relies as much as possible on foreign reviews, typically United States Environmental Protection Agency (USEPA) Reregistration Eligibility Decision (RED) documents. For products to be re-evaluated under Program 1, the foreign review must meet the following conditions:

- it covers the main science areas, such as human health and the environment, that are necessary for Canadian re-evaluation decisions;
- it addresses the active ingredient and the main formulation types registered in Canada; and
- it is relevant to registered Canadian uses.

Given the outcome of foreign reviews and a review of the chemistry of Canadian products, the PMRA will propose a re-evaluation decision and appropriate risk-reduction measures for Canadian uses of an active ingredient. In this decision, the PMRA takes into account the Canadian use pattern and issues (for example the federal Toxic Substances Management Policy [TSMP]).

Based on the health and environmental risk assessments published in the 2007 RED, the USEPA concluded that POD was eligible for reregistration provided risk-reduction measures were adopted. The PMRA re-evaluation of POD is largely based on the USEPA RED and includes additional assessments conducted by the PMRA during the re-evaluation.

For more details on the information presented in this overview, please refer to the Science Evaluation section of this consultation document.

What Is POD?

POD is an antimicrobial active ingredient used for control of algae in swimming pools, spas, hot tubs and decorative fountains. It is also registered for control of algae, bacteria and fungi in cooling towers, industrial air washing systems, metal working fluids, and starch solutions used in the production of paper, paperboard, and adhesives. Commercial products containing POD are applied by commercial workers by open pour or liquid pump. Domestic products can be applied by homeowners by open pour.

Health Considerations

Can Approved Uses of POD Affect Human Health?

POD is unlikely to affect your health when used according to the revised label directions.

People could be exposed to POD through residential and occupational exposure. The PMRA considers two key factors when assessing health risks: the levels at which no health effects occur and the levels to which people may be exposed. The dose levels
used to assess risks are established to protect the most sensitive human population (for example, children and nursing mothers). Only uses for which exposure is well below levels that cause no effects in animal testing are considered acceptable for continued registration.

POD is unlikely to affect human health provided that risk-reduction measures to further protect workers proposed by the PMRA are implemented.

Environmental Considerations

What Happens When POD Is Introduced Into the Environment?

POD is unlikely to affect non-target organisms due to limited potential for environmental exposure.

Non-target organisms could be exposed to POD in the environment as a result of effluent discharge to waters adjacent to manufacturing facilities. Environmental risk is assessed by the risk quotient method—the ratio of the estimated environmental concentration to the relevant effects endpoint of concern. In this screening level assessment, the resulting risk quotients are compared to corresponding levels of concern. A risk quotient less than the level of concern is considered a negligible risk to non-target organisms, whereas a risk quotient greater than the level of concern indicates some potential risks of concern.

POD is unlikely to pose an adverse effect to the environment if used according to amended labels. Improvements to environmental labels statements and risk-reduction measures are proposed by the PMRA.

Measures to Minimize Risk

Labels of registered pesticide products include specific instructions for use. Directions include risk-reduction measures to protect human health and the environment. These directions must be followed by law. As a result of the re-evaluation of POD, the PMRA is proposing further risk-reduction measures for product labels.

Human Health

- Additional protective equipment to protect workers
- Additional instructions concerning good hygiene practices in occupational settings

Environment

- Improvements to advisory label statements and prohibition of POD use in decorative fountains with fish

A submission to implement label revisions will be required within 90 days of finalization of the re-evaluation decision.

What Additional Scientific Information Is Required?

Data are required as a condition of continued registration under Section 12 of the *Pest Control Products Act*. The registrants of this active ingredient must provide these data or an acceptable scientific rationale to the PMRA within the timeline specified in the decision letter. Appendix I lists all data requirements.

Next Steps

Before making a final re-evaluation decision on POD, the PMRA will consider all comments received from the public in response to this consultation document. The PMRA will then publish a Re-evaluation Decision[2] document that will include the decision, the reasons for it, a summary of comments received on the proposed decision and the PMRA's response to these comments.

[2] "Decision statement" as required by subsection 28(5) of the *Pest Control Products Act*.

Science Evaluation

1.0 Introduction

Poly[oxyethylene(dimethyliminio) ethylene(dimethyliminio) ethylene dichloride], hereafter referred to as POD, is an antimicrobial active ingredient used for control of algae in swimming pools, hot tubs and decorative fountains. It is also registered for control of algae, bacteria and fungi in cooling towers, industrial air washing systems, metal working fluids, and starch solution used in the production of paper, paperboard, and adhesives.

Following the 2009 re-evaluation announcement for POD, the registrant of the technical grade active ingredient in Canada indicated their intention to support all uses included on the labels of commercial and domestic end-use products in Canada.

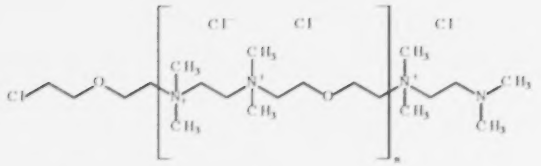
The Pest Management Regulatory Agency (PMRA) used recent assessments of POD from the United States Environmental Protection Agency (USEPA) and conducted additional risk assessments during the re-evaluation. The USEPA Reregistration Eligibility Decision (RED) document for Busan 77, dated 2007, as well as other information on the regulatory status of POD in the United States can be found on the USEPA Pesticide Registration Status page at www.epa.gov/pesticides/reregistration/status.htm.

2.0 The Technical Grade Active Ingredient, Its Properties and Uses

2.1 Identity of the Technical Grade Active Ingredient

Common name	Poly[oxyethylene (dimethyliminio)ethylene(dimethyliminio)ethylene dichloride]
Function	Antimicrobial
Chemical Family	Polymer
Chemical name	
1 **International Union of Pure and Applied Chemistry (IUPAC)**	N,N,N',N'-Tetramethylethane-l,2-diamine polymer with 2,2'-dichloro-l,l'-oxydiethane
2 **Chemical Abstracts Service (CAS)**	1,2-Ethanediamine, N,N,N',N'-tetramethyl-, polymer with 1,1'-oxybis[2-chloroethane]
CAS Registry Number	31075-24-8
Molecular Formula	$(C_6H_{16}N_2 \cdot C_4H_8Cl_2O)_x$

Structural Formula



Molecular Weight 3886 (average) amu

Based on the manufacturing process used, contaminants of human health or environmental concern as identified in the Canada Gazette, Part II, Vol. 142, No. 13, SI/2008-67 (2008-06-25), including TSMP Track 1 substances, are not expected to be present in the product.

2.2 Physical and Chemical Properties

Table 1 Physical and Chemical Properties of the Technical Grade Active Ingredient

Property	Result
Vapour pressure	20°C: 14.4 hPa (10.8 mm Hg) 20°C: 19.2 hPa (14.4 mm Hg)
UV/Visible spectrum	The product does not have UV chromophores
Solubility in water	Completely soluble
n-Octanol/Water partition coefficient	The octanol/water partition coefficient of the technical grade product Reg. 18605 was found to be less than 0.0534 ($log_{10}P < -1.3$) at 25 ±1°C.
Dissociation constant	Dissociation Constant is not determined as the active ingredient is 100% dissociated in solution.

2.3 Comparison of Use Patterns in Canada and the United States

Commercial products containing POD can be applied to swimming pools, spas, hot tubs and decorative fountains by open pour at the maximum application rate of 8.6 ppm. In industrial settings, commercial products can be applied at the maximum application rate of 22 ppm in water cooling systems, 50.4 ppm in air washing systems, 180 ppm in starch solutions used in the manufacture of paper, paperboard and adhesives, and 600 ppm in metal working fluids. Domestic products containing POD can be applied by homeowners to swimming pools at a maximum application rate of 8.4 ppm.

The Canadian uses are encompassed by the USEPA RED with the exception of POD use as a material preservative in the starch solution used in the production of paper, paperboard and adhesives. However, it was determined that the USEPA assessments provide enough information to assess the starch use scenario and thus, the 2007 RED formed the basis of the re-evaluation with additional assessments conducted by the PMRA during the re-evaluation.

All current uses are being supported by the registrant(s) and were, therefore, considered in the re-evaluation of POD. Appendix II lists all POD products that are registered as of June 10, 2011, under the authority of the *Pest Control Products Act*.

3.0 Impact on Human Health and the Environment

In their 2007 RED, the USEPA concluded that the end-use products formulated with POD met the safety standard under the American *Federal Insecticide, Fungicide and Rodenticide Act* and would not pose unreasonable risks or adverse effects to humans and the environment if used according to the amended product labels.

3.1 Human Health

Toxicology studies in laboratory animals describe potential health effects resulting from various levels of exposure to a chemical and identify dose levels at which no effects are observed. Unless there is evidence to the contrary, it is assumed that effects observed in animals are relevant to humans and that humans are more sensitive to effects of a chemical than the most sensitive animal species.

Exposure to POD may occur through residential and occupational exposure. When assessing health risks, the PMRA considers two key factors: the levels at which no health effects occur and the levels to which people may be exposed. The dose levels used to assess risks are established to protect the most sensitive human population (for example, children and nursing mothers).

The toxicological endpoints used in the human health risk assessment are summarized in Appendix III. The USEPA assessed only a short-term dermal irritation potential of POD using an irritation endpoint from a 90-day dermal rat toxicity study. No intermediate- or long-term dermal risk assessments were conducted by the USEPA for occupational or residential scenarios because no intermediate- or long-term dermal endpoints were selected by the USEPA. Dermal irritation endpoints are not generally used by the PMRA for a quantitative dermal risk assessment. Therefore, the PMRA assessed short-term dermal exposure using an oral NOAEL of 500 mg/kg bw/day from a developmental toxicity study in the rat. Further, intermediate-, and long-term dermal exposures were assessed by the PMRA using an oral NOAEL of 221 mg/kg bw/day from a subchronic study in the rat and the NOAEL of 100 mg/kg bw/day from the chronic/carcinogenicity study in the rat, respectively. The target margin of exposure (MOE) of 100 was used for short-, intermediate-, and long-term durations.

3.1.1 Occupational Exposure and Risk

Occupational risk is estimated by comparing potential exposures with the most relevant endpoint from toxicology studies to calculate a margin of exposure (MOE). This is compared to a target MOE incorporating safety factors protective of the most sensitive subpopulation. If the calculated MOE is less than the target MOE, it does not necessarily mean that exposure will result in adverse effects, but mitigation measures to reduce risk would be required.

Workers can be exposed to POD when handling the pesticide and when coming in contact with treated liquids (for example metal working fluids) or finished products (for example paper and paperboard).

3.1.1.1 Handler Exposure and Risk

Among the occupational scenarios assessed in the RED, application of POD to swimming pools by open liquid pour and, application of POD to water cooling systems, air washer systems and metal working fluids by open liquid pour and liquid metering pump were found to be relevant to the Canadian situation. Further, based on information provided by the Canadian Registrant, it was determined that US assessments are applicable to the Canadian-specific scenario, application of POD to the starch solution.

Short- and intermediate-term handler exposure analyses were conducted by the USEPA using unit exposure values from the Chemical Manufacturers Association (CMA) antimicrobial exposure study assuming personal protective equipment (PPE) consisting of a long-sleeved shirt, long pants and chemical-resistant gloves, maximum application rates as specified on labels, and an average worker body weight of 70 kg.

All assessed occupational scenarios resulted in acceptable short- and intermediate-term inhalation MOEs above the target MOE of 100, indicating no risk of concern. Although, the Canadian maximum application rate for an air washer system is 1.5 times higher than the assessed US rate, the estimated inhalation MOE provides sufficient protection to accommodate for difference in application rates. Further, short-, intermediate-term dermal risk assessments conducted by the PMRA for open liquid pour and liquid metering pump scenarios resulted in dermal MOEs above the target MOE of 100, indicating no risk of concern.

Based on irritation effects observed in the primary dermal irritation study in rats as well as personal protective equipment assumed in the risk assessment, the PMRA proposes additional PPE consisting of a long-sleeved shirt, long pants, chemical-resistant gloves. In addition, a chemical-resistant apron is proposed for all workers handling end-use products containing POD in industrial settings. Further, additional instructions concerning good hygiene practices are proposed to be included on POD labels. The proposed label amendments are listed in Appendix IV.

3.1.1.2 Post-application Exposure and Risk

The post-application occupational risk assessment considered exposures to workers exposed to POD in industrial cooling water systems, air washer systems, and metal working fluids and, in the finished products (for example paper and paperboard).

The potential for post-application worker exposure and risk from POD is considered negligible for industrial cooling water systems and air washers with effective mist eliminators. Consequently, no mitigation measures are proposed for these uses.

The potential for post-application worker exposure to POD in paper, paperboard, and adhesives is expected to be minimal considering that the concentration of POD in the starch solution is low, the active is added during the manufacturing process, and it is expected to be bound to the material. Consequently, no further mitigation measures are proposed.

There is potential post-application worker exposure to POD from treated metal working fluid. The short-, intermediate and long-term inhalation exposures of workers resulted in MOEs above the target MOE of 100, indicating no risk of concern. However, due to the lack of exposure data, short-, intermediate and long-term dermal exposures were not assessed by the PMRA. Additional data will be requested to confirm acceptability of this use. To mitigate a dermal irritation potential, gloves are usually recommended for workers exposed to chemicals. However, for workers exposed to metal working fluids gloves are not a viable option as they could catch in moving parts leading to serious accidents. Therefore, no further mitigation measures are proposed by the PMRA at this time.

3.1.2 Non-Occupational Exposure and Risk Assessment

3.1.2.1 Residential Exposure

In Canada, individuals in residential settings can be exposed to POD while applying the pesticide to swimming pools and spas, while swimming in treated pools and through incidental oral ingestion of treated swimming pool water.

Residential risk is estimated using the MOE approach described in Section 3.1.1. Short- and intermediate-term inhalation and dermal exposure of a homeowner were assessed by the PMRA based on the Canadian maximum application rate. Short- and intermediate-term combined (dermal plus inhalation) exposures were above the target MOE of 100, indicating no risk of concern. Consequently, no further mitigation measures are proposed by the PMRA.

Potential post-application inhalation exposure of swimming pool users to POD is expected to be negligible based on the extremely low vapour pressure of POD. Short- and intermediate-term dermal MOEs were above the target MOE of 100 indicating no risk of concern. No further mitigation measures are proposed by the PMRA.

Post-application incidental oral exposure of swimmers to POD following the ingestion of swimming pool water resulted in incidental oral MOEs above the target MOE of 100 for all age groups (toddlers, children 7-14, adults) indicating no risk of concern. No further mitigation measures are proposed by the PMRA.

3.2.2.2 Exposure from Food and Drinking Water

There are no food or feed uses for of POD registered in Canada. However, the pesticide can be used as a material preservative in the starch solution used in the production of paper and paperboard, which may come in contact with food. The PMRA determined that the use of POD as a material preservative in the starch solution used in the production of materials intended for food contact is not of concern. Consequently, no further mitigation measures are proposed by the PMRA.

The potential for contamination of drinking water with POD was determined as unlikely considering that the current use pattern. The review of the existing Canadian water monitoring data provided no information on POD in Canadian drinking water sources.

3.1.2.3 Aggregate Risk Assessment

Aggregate risk combines the different routes of exposure to POD including dietary and residential exposures. Acute and chronic aggregate risk assessments are comprised of contributions from food and drinking water exposures. Short-term and intermediate aggregate risk assessments are comprised of contributions from food, drinking water, and non-occupational exposure (dermal, inhalation).

Based on the current POD use pattern, a single scenario with a potential for aggregate exposure was identified by the USEPA, that is, an adult applying POD to a swimming pool and swimming/playing in a swimming pool the same day. However, the USEPA determined that aggregate exposure for this adult was not of concern. On this basis, no further mitigation measures are proposed by the PMRA.

3.1.3 Cumulative Effects

The USEPA has not found a common mechanism of toxicity for POD and other chemicals. Therefore, a cumulative risk assessment was not conducted.

3.2 Environment

3.2.1 Environmental Risk Assessment

POD was found to be stable to hydrolysis (no degradation over a 30-day period) and photolysis (no appreciable degradation over a 30-day period) in aquatic solutions with mostly bound residues (>90%). It is also stable to metabolism in soil and sediment water systems (up to 12 months). It is not likely to be volatile based on its miscibility in water and high molecular weight and is not likely to contaminate surface and ground water (low mobility in soil, strong sorption to suspended solids). POD was not bioaccumulative in channel catfish.

Application of POD to the once-through cooling water system is believed to represent the worst-case scenario from the ecological perspective. In this scenario water taken from a source (for example lake, river) is treated with the biocide, pumped through a heat exchange system and then discharged. The USEPA assessed risks to aquatic organisms using the Probabilistic Distribution Model. Based on the results of the modelling, the USEPA determined that the potential discharge from the once-through cooling water system might result in risk for freshwater fish, freshwater invertebrates and estuarine/marine invertebrates. However, considering limitations (for example available discharge data) and conservative assumptions (for example the maximum application rate, continuous dosing throughout the release period) used in modeling, the USEPA concluded the risk to aquatic species may be overestimated.

Based on the current Canadian use pattern, the US risk assessment is relevant to the Canadian situation. The PMRA proposes improvements to the general environmental label statements. Further, the PMRA proposes a label statement prohibiting use of POD in decorative fountains with fish based on high to very high toxicity of this chemical to freshwater fish and invertebrates. The proposed label statements are listed in Appendix IV.

3.3 Pest Control Product Policy Considerations

3.3.1 Toxic Substances Management Policy Considerations

The Toxic Substances Management Policy (TSMP) is a federal government policy developed to provide direction on the management of substances of concern that are released into the environment. The TSMP calls for the virtual elimination of Track 1 substances (those that meet all four criteria outlined in the policy, namely, CEPA-toxic or equivalent, predominantly anthropogenic, persistent and bio-accumulative).

During the re-evaluation process, POD was assessed in accordance with the PMRA Regulatory Directive DIR99-03, *The Pest Management Regulatory Agency's Strategy for Implementing the Toxic Substances Management Policy,* and evaluated against the Track 1 criteria for persistence and bioaccumulation. In order for POD or its transformation products to meet Track 1 criteria, the criteria for both bioaccumulation and persistence (in one media) must be met.

- Persistence. POD is stable to biotransformation in soil and sediment/water systems (up to 12 months). Given that TSMP Track 1 criterion is a half-life in soil or water $\geq$182 days or in sediment >365 days it is concluded that POD does meet the criteria for persistence.
- Bioaccumulation. The bioconcentration factor (BCF) of 2 is below the TSMP Track 1 criterion (BCF $\geq$ 5,000). POD does not meet the criterion for bioaccumulation.

On this basis, it was concluded that POD does not meet all Track 1 criteria and therefore, it is not a candidate for Track 1 classification.

3.3.2 Contaminants and Formulants of Health or Environmental Concern

During the re-evaluation of POD, contaminants in the technical are compared against the *List of Pest control Product Formulants and Contaminants of Health or Environmental Concern* maintained in the *Canada Gazette*. The list is used as described in the PMRA Notice of Intent NOI2005-01 and is based on existing policies and regulations including: DIR99-03; and DIR2006-02, and taking into consideration the Ozone-depleting Substance Regulations, 1998, of the *Canadian Environmental Protection Act* (substances designated under the Montreal Protocol). The PMRA has reached the following conclusion:

Technical grade POD does not contain any contaminants of health or environmental concern identified in the *Canada Gazette*.

The use of formulants in registered pest control products is assessed on an ongoing basis through PMRA formulant initiatives and Regulatory Directive DIR2006-02.

4.0 Incident reports

Starting 26 April 2007, registrants are required by law to report incidents, including adverse effects to health and the environment, to the PMRA within a set time frame.

Available information from the PMRA database indicates that as of June 10, 2011, four incident reports were submitted to the PMRA. Three incidents occurred in Canada. The first incident, classified as minor, involved an individual who developed a skin rash following swimming in a pool that was treated with POD at a dose 3-times higher than the recommended dose. The second, also classified as minor, involved an individual who suffered respiratory irritation following exposure to a spilled product containing POD. The third incident involved a packaging failure. The fourth incident, classified as "animal death", occurred in the US and involved a dog which died following accidental ingestion of an end-use product containing 60% POD.

A limited number of incidents were reported by the USEPA in the 2007 RED for POD. The most frequently observed symptoms were associated with irritation as a result of dermal, inhalation or ocular exposure.

5.0 Organization for Economic Co-operation and Development Status of POD

Canada is part of the Organization for Economic Co-operation and Development (OECD), which groups 30 member countries and provides governments with a setting in which to discuss, develop and perfect economic and social policies. They compare experiences, share information and analyses, seek answers to common problems, and work to co-ordinate domestic and international policies to allow for consistency in practices across nations.

Based on the current available information on the status of POD in other OECD member countries, it is registered in Australia and New Zealand as an algaecide for use in aquariums, swimming pools and ponds.

The United States, also an OECD member, assessed the registration of all uses of POD in 2007 and concluded using POD as a pesticide does not result in unreasonable adverse effects to human health or the environment provided the risk-reduction measures recommended in the RED document were implemented. The USEPA required additional measures to mitigate occupational exposure and environmental exposure.

The Canadian re-evaluation of POD is largely based on the 2007 USEPA assessments and includes additional assessments conducted by the PMRA during the re-evaluation. As a result of the re-evaluation, the PMRA proposes additional measures to mitigate occupational and environmental exposure.

6.0 Proposed Re-evaluation Decision

The PMRA has determined that POD is acceptable for continued registration with the implementation of the proposed risk-reduction measures. These measures are required to further protect human health and the environment:

- Additional personal protective equipment for commercial workers;
- Additional instructions concerning good hygiene practices;
- Improvements to the general environmental advisory label statements and prohibition of POD use in decorative fountains with fish.

The labels of Canadian end-use product must be amended to include the label statements listed in Appendix IV. A submission to implement label revisions will be required within 90 days of finalization of the re-evaluation decision. The registrant of the technical grade active ingredient is required to submit data as a condition of continued registration under Section 12 of the *Pest Control Products Act*. Appendix I lists data requirements.

It should be noted that for end-use products containing more than one active ingredient under re-evaluation, registration status might change as a result of the re-evaluation of the remaining affected active ingredients.

7.0 Supporting Documentation

PMRA documents, such as Regulatory Directive DIR2001-03, *Pest Management Regulatory Agency Re-evaluation Program,* and DACO tables can be found on the Pesticides and Pest Management portion of Health Canada's website at www.healthcanada.gc.ca/pmra. PMRA documents are also available through the Pest Management Information Service.
Phone: 1-800-267-6315 within Canada or 1-613-736-3799 outside Canada (long distance charges apply); fax: 613-736-3798; e-mail: pmra.infoserv@hc-sc.gc.ca.

The federal TSMP is available through Environment Canada's website at www.ec.gc.ca/toxics.

The USEPA RED document for Busan 77 is available on the USEPA Pesticide Registration Status page at www.epa.gov/pesticides/reregistration/status.htm.

List of Abbreviations

a.i.	active ingredient
bw	body weight
CAS	Chemical Abstracts Service
cm	centimetre(s)
COC	concentration of concern
DACO	data code
g	gram(s)
IUPAC	International Union of Pure and Applied Chemistry
kg	kilogram(s)
K_{ow}	*n*-octanol–water partition coefficient
L	litre(s)
LOAEL	lowest observed adverse effect level
mg	milligram(s)
mm Hg	millimetre mercury
MOE	margin of exposure
NOAEL	no observed adverse effect level
OECD	Organisation for Economic Co-operation and Development
PCPA	*Pest Control Products Act*
PHED	Pesticide Handlers Exposure Database
PMRA	Pest Management Regulatory Agency
PPE	personal protective equipment
PRVD	Proposed Re-evaluation Decision
RED	Reregistration Eligibility Decision
RfD	reference dose
RVD	Re-evaluation Decision
TGAI	technical grade active ingredient
TSMP	Toxic Substances Management Policy
USEPA	United States Environmental Protection Agency
UV	ultraviolet

Appendix I Additional Data Requirements

The following data are required as a condition of continued registration under Section 12 of the PCPA. The registrants of this active ingredient are required to provide these data or an acceptable scientific rationale within the timeline specified in the decision letter that will be send to registrant(s) of the technical active ingredients by the PMRA.

DACO 5.2 Use Description Scenario (material preservative in metal working fluids)

DACO 5.6 Post-application: Passive Dosimetry Data

Exposure data for workers coming in contact with metal working fluids and/or involved in maintenance/clean-up activities related to use of metal working fluids)

Appendix II Registered Products Containing POD (as of June 10, 2011)

Registration Number	Marketing Class	Registrant	Product Name	Formulation Type	Guarantee (%)
18605	T	BUCKMAN LABORATORIES OF CANADA LTD.	WSCP LIQUID MICROBICIDE	SN	60
29966	T	SANI-MARC INC.	AGA 60	SN	60
12004	C	BUCKMAN LABORATORIES OF CANADA LTD.	BUSAN 77 LIQUID MICROBICIDE	SN	60
12233	C	M-CHEM TECHNOLOGIES INC.	WT 640	SN	22.8
13310	C	PACE CHEMICALS LTD.	MICROCIDE CA-39 (ALGAE & BACTERIA CONTROL AGENT)	SN	7
13418	C	GE WATER AND PROCESS TECHNOLOGIES CANADA	SPECTRUS NX1424	SN	15
15361	C	NCH CANADA INC.	SERIES 3001-BIOCIDE	SN	12
17077	C	DREW CANADA, ASHLAND CANADA CORP.	BIOCIDE-T	SN	7.5
17159	C	THERMIDAIRE CORP. LTD.	PROTECTOTHERM NF LIQUID MICROBICIDE	SN	10
17331	C	QUEBEC-O-CHIMIE INC.	UNICA-110 NON FOAMING LIQUID MICROBICIDE	SN	10
17369	C	ROCHESTER MIDLAND LIMITED	ML-13G NON-FOAMING LIQUID MICROBICIDE	SN	15
18800	C	DUBOIS CHEMICALS CANADA, INC.	GCO-10 LIQUID BACTERIOSTAT & ALGAECIDE	SN	1.7
19099	C	DUBOIS CHEMICALS CANADA, INC.	GAX-16 LIQUID BACTERISTAT & ALGAECIDE	SN	15
19434	C	KLENZOID CO. LTD.	KLENZOID SLIMICIDE AQ LIQUID MICROBICIDE	SN	15
20225	C	AQUARIAN CHEMICALS INC.	AQUARIAN C413	SN	30
20227	C	AQUARIAN CHEMICALS INC.	AQUARIAN C414 LIQUID MICROBICIDE	SN	12
20430	C	DUBOIS CHEMICALS CANADA, INC.	GCO-10 WITH VISIGARD LIQUID BACTERIOSTAT & ALGAECIDE	SN	1.7
20923	C	IPAC CHEMICALS LTD.	IPACIDE LWT 122 LIQUID MICROBIOCIDE	SN	10
21527	C	BUCKMAN LABORATORIES OF CANADA LTD.	POD-CW 30 LIQUID MICROBICIDE	SN	30
21528	C	BUCKMAN LABORATORIES OF CANADA LTD.	POD-CW 20 LIQUID MICROBICIDE	SN	20

Registration Number	Marketing Class	Registrant	Product Name	Formulation Type	Guarantee (%)
21529	C	BUCKMAN LABORATORIES OF CANADA LTD.	POD-CW15 LIQUID MICROBICIDE	SN	15
21530	C	BUCKMAN LABORATORIES OF CANADA LTD.	POD-CW 10 LIQUID MICROBICIDE	SN	10
21690	C	CONTROLCHEM CANADA LTD.	CONTROL CHEM 2661 LIQUID MICROBICIDE	SN	10
21728	C	NALCO CANADA COMPANY	OMNITROL 600-CW	SN	1.5
21729	C	NALCO CANADA COMPANY	OMNITROL 300-CW	SN	3
21783	C	KLENZOID CO. LTD.	SLIMICIDE WS LIQUID MICROBICIDE	SN	10
22092	C	BUCKMAN LABORATORIES OF CANADA LTD.	BULAB 6002 LIQUID MICROBICIDE (INDUSTRIAL)	SN	60
22099	C	PRODUITS CHIMIQUES MAGNUS LTEE	MAGNATROL 420-A	SN	20
22272	C	LES ENTERPRISES ATAKI ENTERPRISES INC.	BW 120 LIQUID MICROBICIDE	SN	20
22277	C	LES ENTERPRISES ATAKI ENTERPRISES INC.	BW 110 LIQUID MICROBICIDE	SN	10
22456	C	WATER ENERGY TECHNOLOGIES	WETCIDE 4120 LIQUID MICROBICIDE	SN	20
22459	C	WATER ENERGY TECHNOLOGIES	WETCIDE 4110 LIQUID MICROBICIDE	SN	10
22587	C	PRODUITS CHIMIQUES MAGNUS LTEE	ALGEX LIQUID MICROBICIDE	SN	20
22741	C	NALCO CANADA COMPANY	OMNITROL 100-CW	SN	9
23128	C	HENKEL CANADA CORPORATION	PARCO BIOCIDE 2426 LIQUID MICROBIOCIDE	SN	30
23371	C	BUCKMAN LABORATORIES OF CANADA LTD.	POD-CW60 LIQUID MICROBICIDE	SN	60
23659	C	BUCKMAN LABORATORIES OF CANADA LTD.	POD-SP60-COM LIQUID ALGAECIDE	SN	60
23991	C	PACE CHEMICALS LTD.	MICROCIDE LA-40	SN	15
23996	C	BUCKMAN LABORATORIES OF CANADA LTD.	BULAB 6001 LIQUID MICROBICIDE	SN	15
24009	C	ACCUCHEM	ACCUTREAT 832 LIQUID MICROBICIDE	SN	30
24013	C	ACCUCHEM	ACCUTREAT 830 LIQUID MICROBICIDE	SN	15

Registration Number	Marketing Class	Registrant	Product Name	Formulation Type	Guarantee (%)
24226	C	JACKLYN INDUSTRIES INC.	WC 8300 LIQUID MICROBICIDE	SN	30
24227	C	JACKLYN INDUSTRIES INC.	WC 8301 LIQUID MICROBICIDE	SN	15
24228	C	JACKLYN INDUSTRIES INC.	WC 8302 LIQUID MICROBICIDE	SN	10
24958	C	BUCKMAN LABORATORIES OF CANADA LTD.	POD-CW 40 LIQUID MICROBICDE	SN	40
25212	C	BUCKMAN LABORATORIES OF CANADA LTD.	ECLIPSE 609 MICROBICIDE	SN	15
25236	C	1221122 ONTARIO LTD. DBA KEYTECH WATER MANAGEMENT	BIOTECH I INDUSTRIAL MICROBIOCIDE	SN	15
25613	C	BUCKMAN LABORATORIES OF CANADA LTD.	POD-CW 2.5 LIQUID MICROBICIDE	SN	2.5
25614	C	BUCKMAN LABORATORIES OF CANADA LTD.	POD-CW5 LIQUID MICROBICIDE	SN	5
25905	C	T. DONOVAN & SON (1997) LIMITED	TRIPLE C CHEMICAL ALGAECIDE 591 LIQUID MICR0BICIDE	SN	15
26108	C	NCH CANADA INC.	COOLACIDE LIQUID MICROBICIDE	SN	15
26281	C	NORKEM INC.	BIOCIDE A LIQUID MICROBIOCIDE	SN	15
26283	C	ZEP MANUFACTURING COMPANY OF CANADA	ZEP TOWER 610 LIQUID MICROBICIDE	SN	10
27040	C	PRODUITS CHIMIQUES MAGNUS LTEE	MAGNATROL 421A LIQUID MICROBICIDE	SN	40
27372	C	GLENGARRY CHEMICALS LTD.	GLENGARRY MB-2000	SN	15
27403	C	LAWRASON'S, INC.	AQUA SUPER KILL	SN	60
27626	C	D.H. JUTZI LIMITED	FORMULA MB 3095	SN	30
27627	C	D.H. JUTZI LIMITED	FORMULA MB 3090	SN	15
27630	C	D.H. JUTZI LIMITED	FORMULA MB 3092	SN	20
27639	C	QWATRO CORPORATION	QT 850	SN	15
28052	C	CHEMISPHERE INC	A-190 LIQUID MICROBIOCIDE	SN	10
28089	C	STATE CHEMICAL LTD.	FORMULA 297C ALGAECIDE	SN	15
29038	C	NCH CANADA INC.	CHECK-MARK COOLACIDE	SN	15
14245	D	I.P.G/G.P.I INDEPENDENT POOL GROUP INC	AQUA PRO ALGIKILL 600 LIQUID ALGAECIDE	SN	30
16446	D	MURSATT CHEMICALS LIMITED	4LG LIQUID ALGAECIDE FOR POOLS	SN	40
17405	D	SANI-MARC INC. D.B.A. CALYPSO	CALYPSO 400 LIQUID ALGAECIDE CONCENTRATE	SN	40
18718.6	D	SANI-MARC INC.	SUPER ALGYZINE	SN	30

Registration Number	Marketing Class	Registrant	Product Name	Formulation Type	Guarantee (%)
18718	D	SANI-MARC INC.	CALYPSO-300 LIQUID ALGAECIDE CONCENTRATE	SN	30
18850	D	SANI-MARC INC. D.B.A.CLEARWATER	POOL DOCTOR ALGAE BUSTER LIQUID ALGAECIDE	SN	40
20116	D	ASEPSIS INC.	OMNI MULTI PURPOSE ALGAECIDE 30	SN	30
20146	D	MURSATT CHEMICALS LIMITED	MBA-60 LIQUID ALGAECIDE	SN	60
20284.11	D	AQUATIC LIFESTYLE GROUP	AQUATIC LIFESTYLE ALGAECIDE 400	SN	40
20284.08	D	PLEASURE WORLD POOL SERVICE	PRO-KILL LIQUID ALGAECIDE	SN	40
20284.14	D	OUTDOOR DEPOT POOL, SPAS, PATIOS COMPANY LTD	CLUB PRO ALGAECIDE 40%	SN	40
20284.01	D	CAPO INDUSTRIES LTD. D.B.A. POOL CHEMICAL INDUSTRIES	POOLCHEM SUPER KILL - LIQUID ALGAECIDE	SN	40
20284.10	D	SUN-MAKER DISTRIBUTORS	SUN-MAKER ALGAE 400	SN	40
20284.09	D	PRESTIGE POOLS & LEISURE PRODUCTS LTD.	PRESTIGE POOLS ALGAE 500	SN	40
20284.16	D	FOX POOL CANADA LTD.	FOX POOL ALGAECIDE 40%	SN	40
20284.15	D	ALLIANCE TRADING INC.	E-Z CLOR ALGAECIDE 40%	SN	40
20284.17	D	CAPO INDUSTRIES LTD.	LEISURE WORKS ALGAE 40%	SN	40
20284	D	CAPO INDUSTRIES LTD.	CAPO FORMULA 500 ALGAECIDE LIQUID	SN	40
20509	D	BIO-LAB CANADA INC.	BIOGUARD POLYGARD (LIQUID ALGICIDE)	SN	30
20528	D	CAPO INDUSTRIES LTD.	CAPO CONCENTRATED ALGAECIDE	SN	30
20683.05	D	DISTRIBUTION DU NORD	PRO 40 CONCENTRATED LIQUID ALGAECIDE	SN	40
20683	D	RBF INTERNATIONAL LTEE	CRISTAL CLAIR 4000 LIQUID ALGAECIDE CONCENTRATE	SN	40
20683.08	D	RBF INTERNATIONAL LTEE	POOL SOLUTIONS 40% CONCENTRATED LIQUID ALGAECIDE	SN	40
20683.48	D	RBF INTERNATIONAL LTEE	CORAL POLY 400	SN	40
20683.40	D	RBF INTERNATIONAL LTEE	ATLANTIS POLY 4000	SN	40
20683.50	D	RONA INC.	40% POLYQUAT LIQUID ALGAECIDE	SN	40
20683.71	D	LES PISCINE TRÉVI INC.	TREVI 40% ALGAECIDE	SN	40
20683.21	D	DISTRIBUTION DU NORD	AZUR ALGAE DESTRUCTOR 40%	SN	40

Registration Number	Marketing Class	Registrant	Product Name	Formulation Type	Guarantee (%)
20683.26	D	RBF INTERNATIONAL LTEE	CLUB PISCINE SUPER FITNESS ALGAE DESTRUCTOR 40%	SN	40
20931	D	BUCKMAN LABORATORIES OF CANADA LTD.	POD-SP30 LIQUID ALGAECIDE	SN	30
20932	D	BUCKMAN LABORATORIES OF CANADA LTD.	POD-SP 50 LIQUID ALGAECIDE	SN	50
20933	D	BUCKMAN LABORATORIES OF CANADA LTD.	POD-SP40 LIQUID ALGAECIDE	SN	40
20934	D	BUCKMAN LABORATORIES OF CANADA LTD.	POD-SP60 LIQUID ALGAECIDE	SN	60
21332	D	ARCH CHEMICALS CANADA, INC D.B.A. QUATIC CONSUMER PRODUCTS	SPA CARE ALGAE KILL LIQUID ALGAECIDE	SN	24
21771	D	SANI-MARC INC. D.B.A. CALYPSO	CALYPSO SPA LIQUID MICROBICIDE ALGAECIDE	SN	40
21998	D	BUCKMAN LABORATORIES OF CANADA LTD.	POD-SP20 LIQUID ALGAECIDE	SN	20
22045	D	CANADIAN TIRE CORP. LTD.	AQUARIUS 3 CONCENTRATED LIQUID ALGAECIDE	SN	40
22342	D	ADVANTIS TECHNOLOGIES, INC.	ALGIMYCIN POLY 60	SN	60
22344	D	LAWRASON'S, INC.	AQUA WHAM-O LIQUID ALGAECIDE	SN	50
22345	D	LAWRASON'S, INC.	AQUA NOK-OUT LIQUID ALGAECIDE	SN	20
22356	D	HYDROTECH CHEMICAL CORPORATION	GUARDEX ALGICIDE 60 LIQUID ALGAECIDE	SN	60
22526	D	HYDROTECH CHEMICAL CORPORATION	GUARDEX NO GREEN LIQUID ALGICIDE	SN	30
22736	D	BUCKMAN LABORATORIES OF CANADA LTD.	POD-SP30WH LIQUID ALGAECIDE	SN	30
23011	D	I.P.G/G.P.I INDEPENDENT POOL GROUP INC	AQUA PRO ALGI PRO 40 LIQUID ALGAECIDE	SN	40
23222	D	N. JONAS & CO., INC.	ALGICIL-30 LIQUID ALGAECIDE	SN	30
23223	D	N. JONAS & CO., INC.	ALGICIL-40 LIQUID ALGAECIDE	SN	40
23224	D	N. JONAS & CO., INC.	ALGICIL-50 LIQUID ALGAECIDE	SN	50
23225	D	N. JONAS & CO., INC.	ALGICIL-60 LIQUID ALGAECIDE	SN	60
23380	D	LAWRASON'S, INC.	POOL LIFE ZAP-IT LIQUID ALGAECIDE	SN	40

Registration Number	Marketing Class	Registrant	Product Name	Formulation Type	Guarantee (%)
23469	D	I.P.G/G.P.I INDEPENDENT POOL GROUP INC	AQUA PRO ALGI-PRO 50 LIQUID ALGAECIDE	SN	50
23474	D	RBF INTERNATIONAL LTEE	CRISTAL CLAIR 6000 LIQUID ALGAECIDE	SN	60
23869	D	RECREATIONAL WATER PRODUCTS INC.	AQUA CHEM ALGAECIDE CONCENTRATE	SN	30
23925	D	SANI-MARC INC.	POOL TIME CLEAN & CLEAR 600 ALGAECIDE	SN	30
23926	D	SANI-MARC INC.	POOL TIME CLEAN & CLEAR SUPREME LIQUID ALGAECIDE	SN	50
24026	D	ADVANTIS TECHNOLOGIES, INC.	GLB ALGIMYCIN 2000	SN	20
24040	D	SUNFRESH LTD.	PRESIDENT'S CHOICE SUPER CONCENTRATED LIQUID ALGAECIDE	SN	50
24384	D	POOLSPORT INC.	PQ 40 CONCENTRATED LIQUID ALGAECIDE	SN	40
24421	D	C.L. MARKETING INC.	ALGYSOLVE 4000 LIQUID ALGAECIDE	SN	40
24422	D	C.L. MARKETING INC.	ALGYSOLVE LIQUID ALGAECIDE	SN	60
24532	D	CAPO INDUSTRIES LTD.	ALGICIDE SUPREME 50% LIQUID ALGAECIDE	SN	50
24941	D	RECREATIONAL WATER PRODUCTS INC.	AQUA CHEM ALGAECIDE PLUS 40	SN	40
25201	D	AQUA COASTAL IMPORTS INC.	AQUA COASTAL ALGI-FREE II	SN	50
25234	D	BUCKMAN LABORATORIES OF CANADA LTD.	BUSAN 1333 CONTROLS CHLORINE-RESISTANT ALGAE	SN	20
25275	D	C.L. MARKETING INC.	TABEX ALGYSOLVE 2250	SN	20
25354	D	SANI-MARC INC.	SANI-MARC ALGAE 600	SN	60
25454	D	SANI-MARC INC.	SANI-MARC INC. ALGI 200	SN	20
25480	D	ASEPSIS INC.	OMNI MULTI-PURPOSE ALGAECIDE 60	SN	60
25497	D	CAPO INDUSTRIES LTD.	FORMULA 6000 LIQUID ALGAECIDE	SN	60
25540	D	GROUPE D'ACHAT M.P. INC.	MAITRE PISCINIER PISCIKILL 600	SN	60
25541	D	SANI-MARC INC. D.B.A. CALYPSO	CALYPSO 600	SN	60
25832	D	ARCH CHEMICALS, INC	HTH PREVENTATIVE ALGAECDIE	SN	20
25843	D	EMAGIN LEISURE CONCEPTS INC	CLEAR CHOICE ALGAE CLEAR (LIQUID ALGAECIDE)	SN	50

Registration Number	Marketing Class	Registrant	Product Name	Formulation Type	Guarantee (%)
25913	D	SANI-MARC INC. D.B.A.CLEARWATER	CLEARWATER ALGAE 40 LIQUID ALGAECIDE	SN	40
25914	D	SANI-MARC INC.	ALGAE 400 LIQUID ALGAECIDE	SN	10
25915	D	ARCH CHEMICALS, INC	PACE 40% LIQUID ALGAECIDE	SN	40
26461	D	C.L. MARKETING INC.	FOXXX ALGAEZONE PLUS	SN	20
26516	D	ARCH CHEMICALS CANADA, INC D.B.A. QUATIC CONSUMER PRODUCTS	SUPER ALGAE KILL 40%	SN	40
26672	D	DISTRIBUTION DU NORD	PRO 60 LIQUID ALGAECIDE	SN	60
26869	D	RBF INTERNATIONAL LTEE	CLUB PISCINE SUPER FITNESS ALGICIDE 60% ALGAE DESTRUCTOR	SN	60
26878	D	ARCH CHEMICALS, INC	HTH EXTRA 60% ALGAECIDE	SN	60
26879	D	ARCH CHEMICALS, INC	HTH EXTRA 40% ALGAECIDE	SN	40
26887	D	OUTDOOR DEPOT POOL, SPAS, PATIOS COMPANY LTD	CLUB PRO ALGAECIDE 60 LIQUID ALGAECIDE	SN	60
26955	D	GROUPE D'ACHAT M.P. INC.	PISCI KILL LIQUID ALGAECIDE	SN	30
27069	D	POOL AND SPA CHEMICAL COMPANY	POOL PURE ALGAE 40 LIQUID ALGAECIDE	SN	40
27176	D	SIMA GROUP/GROUPE SIMA D.B.A AQUA SELECT	AQUA SELECT ALGAECIDE 40%	SN	40
27465	D	LES PISCINE TRÉVI INC.	TREVI MAX 6000	SN	60
27568	D	PURITY	PURE SUPER ALGICIDE 30	SN	30
27767	D	SIMA GROUP/GROUPE SIMA D.B.A AQUA SELECT	ALGAECIDE 60%	SN	60
28185	D	I.P.G/G.P.I INDEPENDENT POOL GROUP INC	AQUAPRO ALGI-PRO 60	SN	60
28237	D	SANI-MARC INC.	KOOL 300	SN	30
28338	D	ASEPSIS INC.	SUN ALGICIDE 60	SN	60
28811	D	PURITY	PURE SUPER ALGICIDE 40	SN	40
28812	D	PURITY	PURE SUPER ALGICIDE 60	SN	60
28931	D	PIONEER FAMILY POOLS - DISTRIBUTION	CLUB PRO 20	SN	20
29129	D	RBF INTERNATIONAL LTEE	CORAL POLY 600	SN	60
29131	D	ALLIANCE TRADING INC.	E-Z CLOR ALGAECIDE 50%	SN	50
29132	D	ALLIANCE TRADING INC.	E-Z CLOR ALGAECIDE 60%	SN	60
29133	D	ALLIANCE TRADING INC.	E-Z CLOR ALGAECIDE 30%	SN	30
29168	D	RBF INTERNATIONAL LTEE	ATLANTIS POLY 6000	SN	60

Registration Number	Marketing Class	Registrant	Product Name	Formulation Type	Guarantee (%)
29181	D	BACKYARD BRANDS INC.	DAZZLE ALGAE CLEAR 60	SN	60
29469	D	GROUPE D'ACHAT M.P. INC.	PISCI #2	SN	30
29758	D	C.L. MARKETING INC.	ALGAE KLEAR 60	SN	60
29763	D	C.L. MARKETING INC.	ALGAE KLEAR 40	SN	40
29769	D	C.L. MARKETING INC.	ALGAE KLEAR 20	SN	20
29959	D	ARCH CHEMICALS, INC	HTH EXTRA ALGIMYCIN	SN	20

T-technical grade product; C – commercial product, D – domestic product; SN - solution

Appendix III Toxicological Endpoints Selected for POD Health Risk Assessments

Exposure Scenario	Dose (mg/kg bw/day)	Study	Target MOE[a]
Acute Dietary	The risk assessment not required since no effect was observed after a single dose.		
Chronic Dietary	NOAEL=100 Chronic RfD=1.0	Chronic oral toxicity study in the rat, LOAEL of 300 mg/kg bw/day based on clinical alteration (reduced albumin and total protein) and reduced body weight gain	
Short-term Incidental Oral	NOAEL=500	Developmental toxicity study in the rat; LOAEL of 700 mg/kg bw/day based on increased mortality	MOE=100
Intermediate-term Incidental Oral	NOAEL=221	Subchronic oral toxicity study in the rat; LOAEL of 752 mg/kg bw/day based on renal tubular mineralization	
Dermal irritation	NOAEL=10 (0.125 mg/cm^2)	90-day dermal toxicity study in the rat; LOAEL of 100 mg/kg bw/day based on dermal irritation	MOE =10
Short-term dermal and inhalation	NOAEL=500	Developmental toxicity study in the rat; LOAEL of 700 mg/kg bw/day based on increased mortality	MOE=100
Intermediate-term dermal and inhalation	NOAEL=221	Subchronic oral toxicity study in the rat; LOAEL of 752 mg/kg bw/day based on renal tubular mineralization	
Long-term dermal and inhalation	NOAEL=100	Chronic oral toxicity study in the rat, LOAEL of 300 mg/kg bw/day based on clinical alteration (reduced albumin and total protein) and reduced body weight gain	
Cancer	Group "D" carcinogen – inadequate evidence		

[a] MOE refers to desired margin of exposure for occupational or residential assessments

Appendix IV Label Amendments for Products Containing POD

The label amendments presented below do not include all label requirements for individual end-use products, such as first aid statements, disposal statements, precautionary statements and supplementary protective equipment. Additional information on labels of currently registered products should not be removed unless it contradicts the above label statements.

A submission to request label revisions will be required within 90 days of finalization of the re-evaluation decision.

The labels of end-use products in Canada must be amended to include the following statements to further protect workers and the environment.

I) For commercial products, the following statements must be included in a section entitled **PRECAUTIONS**.

> KEEP OUT OF REACH OF CHILDREN. Do not mix with any other chemical. Harmful if swallowed. Avoid contact with skin and eyes. Wear a long-sleeved shirt and long pants, chemical-resistant gloves during handling, clean-up and repair activities. In addition, a chemical-resistant apron is required for workers handling end-use products in industrial settings. Wash thoroughly after handling. Immediately remove contaminated clothing and wash before reuse.

II) For domestic products, the following statements must be included in a section entitled **PRECAUTIONS**:

> KEEP OUT OF REACH OF CHILDREN. Do not mix with any other chemical. Harmful if swallowed. Avoid contact with skin and eyes.

III) For commercial products, the following statements must be included in a section entitled **DIRECTIONS FOR USE**.

> **DO NOT** discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans, and other waters.
>
> **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

IV) For the commercial product with the decorative fountains use POD (Registration No. 12004), the following statement must be included in the **DIRECTIONS FOR USE** section:

> **DO NOT** use in decorative fountains with fish.

V) For domestic and commercial products, the following statements must be included in a section entitled **ENVIRONMENTAL HAZARDS**.

Toxic to aquatic organisms.

VI) The label of the commercial end-use product BULAB 6002 LIQUID MICROBICIDE (Registration Number 22092) must be amended to include application rates and application methods.

References

Studies considered in the Chemistry Assessment

A. LIST OF STUDIES/INFORMATION SUBMITTED BY REGISTRANT

PMRA No.	Reference
1222947	Part 12.7 Comprehensive Data Summaries (CDS).
1222950	Part 2 Product Chemistry Requirements of a Technical Grade Active Ingredient (TGAI) or an Integrated System Product (ISP).
1372765	Product Chemistry Summary.